U.S. DEPARTMENT OF ENERGY STRATEGIC PLAN

Introduction

The Department of Energy conducts programs relating to energy resources, national nuclear security, environmental quality, and science. In each of these areas, the United States is facing significant challenges. Our economic well-being depends on the continuing availability of reliable and affordable supplies of clean energy. Our Nation's security is threatened by the proliferation of weapons of mass destruction. Our environment is under threat from the demands a more populated planet and the legacies of 20th-century activities. Science and the technology derived from it offer the promise to improve the Nation's health and well-being and broadly expand human knowledge.

In conducting its programs, the Department of Energy (DOE) employs unique scientific and technical assets, including 30,000 scientists, engineers, and other technical staff, in a complex of outstanding national laboratories that have a capital value of over $45 billion. Through its multidisciplinary research and development activities and its formidable assemblage of scientific and engineering talent, DOE focuses its efforts on four programmatic business lines:

- Energy Resources—promoting the development and deployment of systems and practices that provide energy that is clean, efficient, reasonably priced, and reliable.
- National Nuclear Security—enhancing national security through military application of nuclear technology and by reducing global danger from the potential spread of weapons of mass destruction.
- Environmental Quality—cleaning up the legacy of nuclear weapons and nuclear research activities, safely managing nuclear materials, and disposing of radioactive wastes.
- Science—advancing science and scientific tools to provide the foundation for DOE's applied missions and to provide remarkable insights into our physical and biological world.

In support of the above four business lines, DOE provides management services to ensure that the technical programs can run efficiently. Our Corporate Management area deals with organizational and management challenges that we must address to better serve our customers, and ultimately, U.S. taxpayers, in an effective and efficient manner. Within Corporate Management, we strive for excellence in the Department's environment, safety, and health practices, together with effective management systems and efficient business practices.

This Strategic Plan describes the goals, objectives, performance measures, and strategies for each of these business lines. This Plan covers our planned activities for the next six years beginning with fiscal year 2001.

DOE Mission

The Department of Energy's mission is:

To foster a secure and reliable energy system that is environmentally and economically sustainable; to be a responsible steward of the Nation's nuclear weapons; to clean up the Department's facilities; to lead in the physical sciences and advance the biological, environmental, and computational sciences; and to provide premier scientific instruments for the Nation's research enterprise.

DOE Vision

The Department of Energy, through its leadership in science and technology, will continue to meet the Nation's needs in energy, environmental quality, and national security by being:

- A partner with Congress, other agencies, and stakeholders to develop and implement policies, legislation, and regulations that promote national security and address our energy and environmental needs in a balanced manner.
- A key contributor to ensure that the United States has a flexible, clean, efficient, and accessible system of energy supply with minimal vulnerability to disruption.
- A vital contributor to reducing the global nuclear danger through our national nuclear security, nuclear safety, and nonproliferation activities.
- A responsible steward of nuclear weapons and materials, cleaning up DOE sites, decommissioning our facilities, stabilizing nuclear materials, managing and disposing of waste, and preventing pollution.
- A major partner in world-class science and technology through our national laboratories, research centers, university research, and our educational and information dissemination programs.
- An employer noted for providing a safe and secure workplace, recognized for management excellence, and acknowledged for delivering results.

Members of the Workplace Improvement Network (WIN), chartered in November 1999 to identify, evaluate, and recommend the implementation of employee ideas to improve the workplace at Department of Energy.

DOE Core Values

The Department will succeed only through the efforts of its employees. Our beliefs and values motivate our behavior and set standards for our individual and collective performance. The core values of the Department of Energy guide our activities as we strive to fulfill our mission.

1. We are public servants and are customer-oriented.

2. We value public safety and respect the environment.

3. We believe people are our most important resource and that they should be treated with fairness, respect, and dignity.

4. We value creativity and innovation.

5. We are committed to excellence.

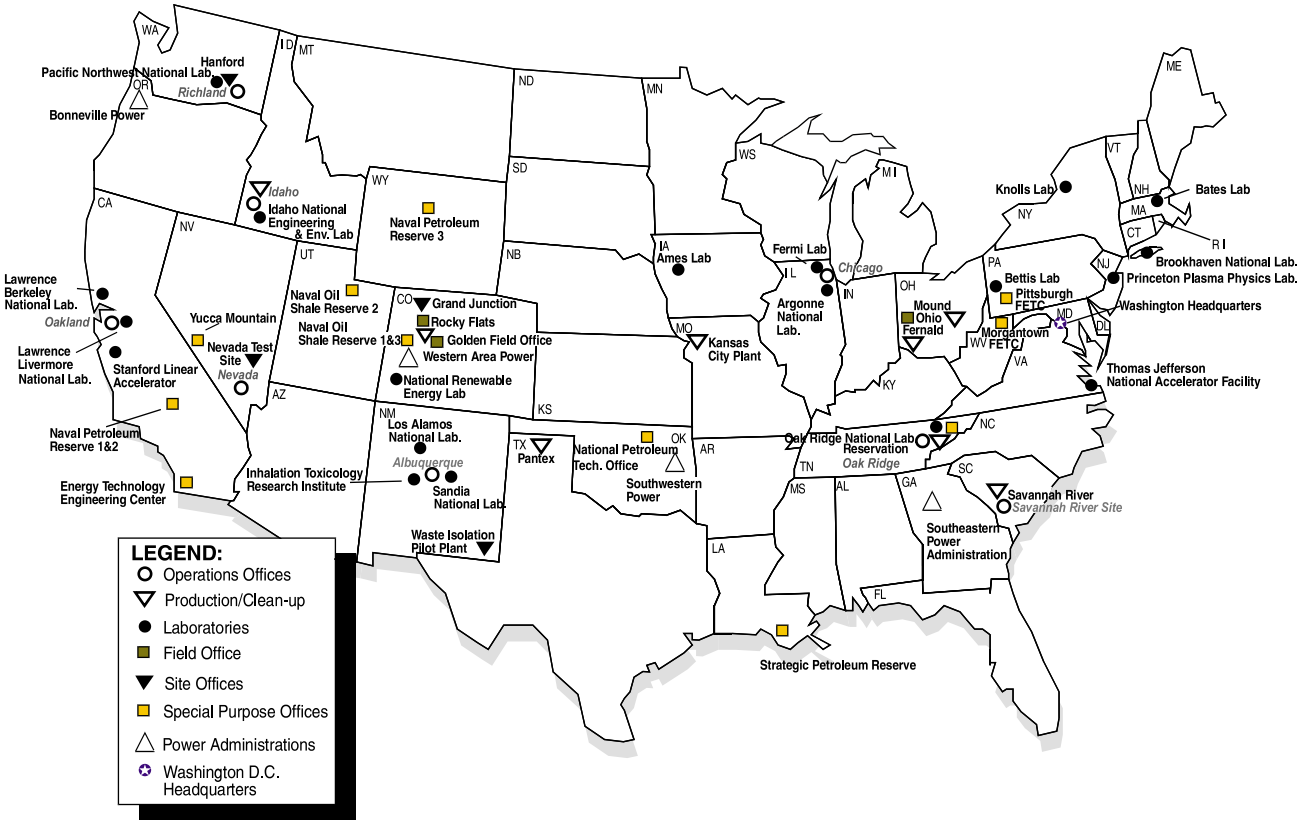
6. We work as a team and advocate teamwork.

7. We recognize that leadership, empowerment, and accountability are essential.

8. We pursue the highest standards of ethical behavior.

A more extensive statement of these core values appears inside the back cover.

Major DOE Field Facilities



The Department's Background

DOE's History. The Department of Energy's has its roots in the Manhattan Project of the U.S. Army Corps of Engineers, which was established in 1942 to manage development of the atomic bomb. After World War II, Congress created the Atomic Energy Commission in 1946 to direct the design, development, and production of nuclear weapons. The Atomic Energy Commission was also responsible for developing nuclear reactors and, beginning in 1954, for regulating the commercial nuclear power industry.

In 1974, Congress replaced the Atomic Energy Commission with two new agencies: the Nuclear Regulatory Commission and the Energy Research and Development Administration. The latter was created to manage the nuclear weapons, naval reactors, and energy development programs, and to research the environmental, biomedical, and safety aspects of energy technologies.

In 1977, Congress created the Department of Energy, which brought together functions and responsibilities of the Energy Research and Development Administration, the Federal Energy Administration, the Federal Power Commission, and the Power Marketing Administrations under one cabinet-level department.

DOE's Present Scope. The Department of Energy develops and implements energy policy and manages a vast array of technical programs. The Department's nationwide complex consists of headquarters and field organizations, national laboratories, nuclear weapons production plants, power marketing administrations, and special-purpose offices. DOE has almost 16,000 Federal employees and over 100,000 contractor employees working at over 50 major installations in 35 states.

The DOE complex includes unique capabilities in science and engineering that we apply to meet the Department's goals in Energy Resources, Nuclear National Security, Environmental Quality, and Science. Powerful accelerators, light sources, neutron beam facilities, plasma and fusion science facilities, genome centers, hydrodynamic testing facilities, special nuclear materials research facilities, and advanced computational centers are just some of the major instruments of science that distinguish DOE's capabilities and enhance the Nation's science base.

Development of this Plan and Its Business Lines

This Plan builds on the 1997 DOE Strategic Plan and incorporates the results of subsequent efforts to evaluate, update, and improve our strategies. Strategic planning activities throughout DOE, major program evaluations, and Departmental annual self-assessments of management challenges have all contributed to this Plan. In addition to our internal efforts, we consulted with Congress, stakeholders, and the public as part of the planning process. The many comments we received on earlier drafts of this Plan have improved the final product. Our planning process and the challenges the Department faces are described in more detail in the third section, entitled "DOE's Strategic Planning."

Our planning efforts are structured into four programmatic business lines: Energy Resources, National Nuclear Security, Environmental Quality, and Science. These programmatic business lines are supported by a corporate management function, presented as a fifth "business line." These business lines are essentially the same as the ones described in the 1997 Strategic Plan. In that document, the Science Business Line was entitled "Science and Technology." The change reflects the fact that "Technology" is distributed throughout DOE's business lines—almost all DOE programs are about technology. Also, in recognition of the

establishment of the National Nuclear Security Administration, the National Security Business Line of 1997 is now named the National Nuclear Security Business Line. That change reflects the singular responsibility of the Department for the "military application of nuclear technology."

A description of the business lines follows, together with a table that lists the general goal for each and its associated objectives.

Energy Resources. Programs in the Energy Resources Business Line respond to the challenge of providing current and future generations with energy that is clean, efficient, reasonably-priced, and reliable. Our development activities cover all aspects of domestic energy from supply through end use, and we also develop energy standards as well as energy-related information, policies, legislation, and regulations. In addition, the Department maintains the Nation's Strategic Petroleum Reserve and actively supports efforts to increase international cooperation on energy issues. Our strategic planning for the Energy Resources Business Line draws heavily on the *Comprehensive National Energy Strategy* (April 1998) and further thinking reflected in the new report *Powering the New Economy: Accomplishments, Investments, Challenges* (September 2000).

National Nuclear Security. Programs in the National Nuclear Security Business Line enhance national security through the military application of nuclear technology and by reducing global danger from weapons of mass destruction. DOE pursues a broad range of activities to maintain the safety, security, and reliability of the Nation's nuclear weapons stockpile in the absence of underground nuclear testing. Strategic planning in this area draws on the Stockpile Stewardship Plan, which DOE updates on an annual basis. Military application of nuclear technology also includes DOE's Naval Reactors Program. In addition, the Department provides expertise and develops capabilities to detect and help prevent the proliferation of materials, technology, and expertise related to nuclear, chemical, and biological weapons.

Environmental Quality. DOE is committed to honoring the Government's obligation to clean up its sites across the country that supported the Nation's production and testing of nuclear weapons; to dispose of spent nuclear fuel from civilian nuclear power plants and radioactive wastes from DOE programs; and to protect human health and the environment. Our plans to address these challenges comprise the Environmental Quality Business Line. They draw on information in the *Status Report on Paths to Closure* (March 2000), as well as the planning and evaluation processes we are following pursuant to the Nuclear Waste Policy Act.

Science. The Department is responding to the challenges of providing basic research to advance science and support DOE's other business lines, and providing instruments of science for the Nation's research enterprise. Programs in the Science Business Line are the foundations for DOE's applied missions, a basis for U.S. technological innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy. Our plans for the Science Business Line draw on information in the *Strategic Plan of the Office of Science* (June 1999), as well as the work of many advisory committees that support the Office of Science.

Corporate Management. The Department strives to achieve excellence in its environment, safety, and health practices and provide effective, efficient management systems in support of our technical programs. Corporate Management is an area in which DOE faces multiple performance and management challenges. These challenges have been primarily identified through DOE's own internal reviews and Inspector General reports, but they have also

been reported by others. The Corporate Management Business Line describes our plans to protect the health and safety of DOE workers and that of the general public, improve the delivery of products and services, ensure the public's confidence in DOE, increase the Department's efficiency and effectiveness, and ensure appropriate internal oversight.

DOE General Goals and Objectives

General Goals	Objectives
Energy Resources General Goal: Promote the development and deployment of energy systems and practices that will provide current and future generations with energy that is clean, efficient, reasonably-priced, and reliable.	ER1: Promote reliable, affordable, clean, and diverse domestic fuel supplies.
	ER2: Promote reliable, affordable, and clean transformation of fuel supplies into electricity and related products.
	ER3: Increase the efficiency and productivity of energy use, while limiting environmental impacts.
	ER4: Inform public policy makers, energy industries, and the general public by providing reliable energy information and analysis.
	ER5: Cooperate globally on international energy issues.
National Nuclear Security General Goal: Enhance national security through the military application of nuclear technology and reduce the global danger from weapons of mass destruction.	NS1: Maintain and refurbish nuclear weapons in accordance with directed schedules to sustain confidence in their safety, security, and reliability, indefinitely, under the nuclear testing moratorium and arms reduction treaties.
	NS2: Achieve the robust and vital scientific, engineering, and manufacturing capability that is needed for current and future certification of the nuclear weapons stockpile and the manufacture of nuclear weapon components under the nuclear testing moratorium.
	NS3: Ensure the vitality and readiness of DOE's national nuclear security enterprise.
	NS4: Reduce the global danger from the proliferation of weapons of mass destruction (WMD).
	NS5: Provide the U.S. Navy with safe, militarily effective nuclear propulsion plants, and ensure their continued safe and reliable operation.
	NS6: Ensure that the Department's nuclear weapons, materials, facilities, and information assets are secure through effective safeguards and security policy, implementation, and oversight.

DOE General Goals and Objectives

General Goals	Objectives
Environmental Quality General Goal: Aggressively clean up the environmental legacy of nuclear weapons and civilian nuclear research and development programs at the Department's remaining sites, safely manage nuclear materials and spent nuclear fuel, and permanently dispose of the Nation's radioactive wastes.	EQ1: Safely and expeditiously clean up sites across the country where DOE conducted nuclear weapons research, production, and testing, or where DOE conducted nuclear energy and basic science research. After completion of cleanup, continue stewardship activities to ensure that human health and the environment are protected.
	EQ2: Complete the characterization of the Yucca Mountain site and, assuming it is determined suitable as a repository and the President and Congress approve, obtain requisite licenses, construct and, in FY 2010, begin acceptance of spent nuclear fuel and high-level radioactive wastes at the repository.
	EQ3: Manage the material and facility legacies associated with the Department's uranium enrichment and civilian nuclear power development activities.
Science General Goal: Advance the basic research and instruments of science that are the foundations for DOE's applied missions, a base for U.S. technology innovation, and a source of remarkable insights into our physical and biological world and the nature of matter and energy.	SC1: Provide the leadership, foundations, and breakthroughs in the physical sciences that will sustain advancements in our Nation's quest for clean, affordable, and abundant energy.
	SC2: Develop the scientific foundations to understand and protect our living planet from the adverse impacts of energy supply and use, support long-term environmental cleanup and management at DOE sites, and contribute core competencies to interagency research and national challenges in the biological and environmental sciences.
	SC3: Explore matter and energy as elementary building blocks from atoms to life, expanding our knowledge of the most fundamental laws of nature spanning scales from the infinitesimally small to the infinitely large.
	SC4: Provide the extraordinary tools, scientific workforce, and multidisciplinary research infrastructure that ensures success of DOE's science mission and supports our Nation's leadership in the physical, biological, environmental, and computational sciences.
Corporate Management General Goal: Demonstrate excellence in the Department's environment, safety, and health practices and management systems that support our world-class programs.	CM1: Ensure the safety and health of the DOE workforce and members of the public, and the protection of the environment in all Departmental activities.
	CM2: Manage human resources and diversity initiatives and implement practices to improve the delivery of products and services.
	CM3: Manage financial resources and physical assets to ensure public confidence.
	CM4: Manage information technology systems and infrastructure to improve the Department's efficiency and effectiveness.
	CM5: Use appropriate oversight systems to promote the efficient, effective, and economical operation of the Department of Energy.

Resource Requirements

The Department will achieve its goals and objectives only if it has adequate resources: financial, human, facilities, and infrastructure.

Financial Resources. In developing this plan, the Department assumed budget appropriations consistent with the Administration's outyear budgets except where specifically noted.

Human Resources. Since 1995, the Department has reduced Federal staff from 13,640 to 10,027 through reductions in force, buyouts, and attrition during a hiring moratorium to meet lowered budget levels. As a consequence, the average age of employees in the Department has increased from 44 to 48 over the last 5 years—almost two years older than the government-wide average. The fraction of the staff eligible for retirement has increased from 6 percent to 11 percent in the last 5 years and will increase to 34 percent in the next 5 years. These are all signs of a declining workforce with separations exceeding hires by almost 3 to 1.

The Department must ensure that it has the necessary skills available to carry out its critical missions, and it must begin the process of rebuilding a pipeline of skills for the future as the Department enters a period where the retirement rate is expected to increase. In November 1998, the Secretary of Energy announced a workforce initiative to identify critical hiring needs and strengthen our technical and management capabilities. Funding for this initiative was not available in FY 2000, leaving the Department almost 700 employees short of its projected needs.

More recently, the Under Secretary has established an R&D Technical Capability Panel to provide a "path forward" for rebuilding R&D technical capability at DOE headquarters. The Panel has determined that a comprehensive program is needed for DOE to improve its technical research management capabilities. In April 2000, the Panel recommended a series of specific steps to be taken. The Department is addressing the recommendations as well as pursuing additional initiatives to address our problems in the area of technical management.

Facilities and Infrastructure. DOE is the landlord of 2.4 million acres of land and over 20,000 facilities throughout the United States. DOE developed and used these properties for nuclear weapons research, production, and testing, as well as basic and applied research in nuclear energy and other fields.

Currently, a significant number of facilities continue to be used for research activities and continue to serve national interests. These facilities need to be upgraded, modernized, and maintained scrupulously. At some sites, many of the support facilities and buildings continue to be essential to our missions. They are aging and are in disrepair. It is essential that we apply resources to maintain this infrastructure. Resources will also be needed in the future to construct high-priority, major new facilities and, more generally, to provide technology upgrades to keep pace with advances in science. High-priority items include both new user facilities for the Office of Science and major new capabilities needed for the Stockpile Stewardship Program. Upgrades to modernize capabilities will require substantial modification to existing instrumentation and in many cases, completely new facilities that will be difficult to accommodate within a largely level funding base.

Other sites are being reduced in size and shut down as a result of downsizing. Often, maintenance at these sites has been deferred, creating a growing liability. Many of these properties can serve other valuable functions. For example, buildings can be decontaminated and converted for reuse to spur economic

redevelopment of surrounding communities. In fact, entire parcels of land can be released for economic development or for other uses (e.g., ecological research, conservation, and recreational, agricultural, or rangeland), as appropriate. We are seeking to reduce the Department's real estate to eliminate low-value assets which will free resources to provide greater protection of vital, remaining assets.

Key External Factors

DOE conducts its programs within a complex environment of laws, regulations, and shared responsibilities and in areas of intense public interest and concern. Many of its programs require external coordination and consultation, and the Department does not exclusively control their direction. In order to be successful, the Department maintains close, continuing working relationships with a number of Federal agencies, State and local governments, Tribal Nations, private industry, and other stakeholders, as well as with Congress. Many other Federal agencies play a complementary and extremely important role in ensuring that success of our programs. Appendix A provides a list of interagency crosscutting activities that entail significant DOE participation.

In addition to external coordination and consultation, there are other factors that are outside of DOE's full control and can influence desired outcomes for programs. Examples include:

- Actions by parties opposed to the national security interests of the United States.
- International developments that affect domestic energy security and prices.
- Future developments in national climate policies that result in major changes in the requirements for reduced greenhouse gas emissions from the energy sector.
- Revolutionary technology improvements and discoveries that significantly alter our strategies.
- Significant changes in the public's perception of DOE's performance that affect Congressional and Administration support for DOE programs.

Monitoring Progress and Data Capacity

In FY 1995, the Secretary of Energy first developed and signed an Annual Performance Agreement with the President. Annual Performance Agreements have been prepared each year since, and they have required DOE to track and report performance at the Departmental level. The system we presently use provides a consistent method of presenting data and assessing performance. However, it is not linked with budget execution, and therefore, does not provide the comprehensive perspective needed to plan effectively.

DOE is developing new standardized technology—the Business Management Information System (BMIS)—that integrates budget data and performance assessments. It uses performance measures that are based on goals defined in the Strategic Plan, Annual Performance Plan, and Performance Agreement. BMIS will be used Department-wide to consolidate the business, organizational, and operational information. BMIS will provide a structured approach to financial management and budget formulation, and it will enhance the ability of DOE to monitor and report on its commitments.

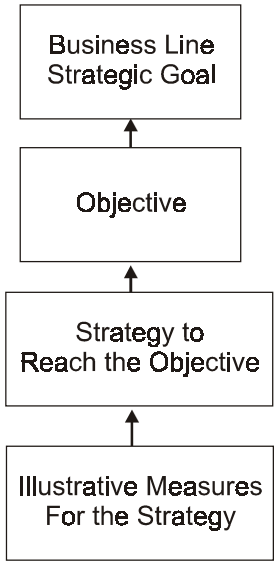
Design of this Plan

The design of this DOE Strategic Plan differs from our previous plan of 1997. Our terminology is now more consistent with the definitions provided in the Government Performance and Results Act (Public Law 103-62). Our business lines have general goals that are long term and outcome oriented. They are stated in a manner that allows an assessment of progress in the future. Each general goal is supported by three to six objectives. Each objective defines major accomplishments that contribute to achieving the general goal. Objectives are measurable, achievable, and reasonable targets with deadlines.

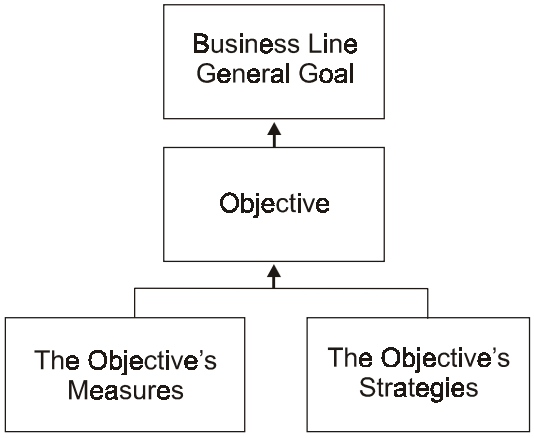
In this Plan, each objective has a definitive set of performance measures and a set of strategies. The objective's measures expand on the objective. They specify the basis by which DOE will ascertain that it is making progress toward achieving the objective. The strategies are the activities that support an objective. In most cases, they are the activities executed using the funds appropriated by Congress.

The second section of this Strategic Plan covers the four programmatic business lines and Corporate Management. Each business line subsection contains: a situation analysis; key external factors; interagency crosscutting coordination; Congressional and stakeholder consultations; program evaluations and analyses; resource requirements; and the business line's general goal, objectives, measures, and strategies.

The third section of this Strategic Plan describes DOE's planning process, the role of program evaluation in planning, management challenges for the Department, and our consultations with stakeholders during the planning process.



1997 Strategic Plan Design



2000 Strategic Plan Design